

I.

가

가

가

7,8,10,12,13,18).

curettes,

sickles, hoes, files, chisels, ultrasonic scaler

Fox, Colombia

60 - 70 °

McCall

가

Goldman -

가

가

가

4,6).

Gracy curette 1,4).

(cutting edges)

2

4,6).

4,6,11).

1).

가

가

sharpening stone

가

4,9,15,16).

가

가

20). Tal Holder System Body, 가
 Load Cell 가
 Digital Indicator

stroke 15 , 45 가 Holder System Gracy
 19). curette 11/12 ,
 1,4,5,11) 40 °
 Wear Tester

가 Body Key &
 Key - way Box ,
 6
 가 Bolt 가
 가 Screw

II. 700g 1200g 14)
 Push &
 1. Pull Gauge 500g
 1100g sand paper
 가 가 600g
 가 Double - ended No. 11/12 Gracy Body Holder System
 curettes 3 가 Box
 A, B, C (1). (Moving way) ,
 A group : REICODENT 6cm
 B group : HU - FRIEDY , 2 Screw Stop
 C group : KIM 'INTERNATIONAL , Sand Paper
 가 320CW
 SILICON CARBIDE ABRASIVE PAPER
 (Handle) 6mm (4).
 25mm (2). sand paper
 , 4 screw .

2. (Wear Tester) Load Cell Box
 Load Cell Box

DANA LOAD CELL CO. 3 4
 Load cell (Model : CMM - K001)
 Load cell (2) 2
 Digital Weighing Indicator Load A , B , C
 Cell 1
 DANA LOAD CELL CO. 1mm 50 ,
 Digital indicator (Model : SM - 15) 100 , 150
 (3).

3.

(1) 1

4. ()

SAS 6.02

Digital V. Calipers (Mitutoyo, made in Japan) (Tip) 1mm
 1/100mm

1) ANOVA test

(5).

가

Wear Tester ,

3 (50 , 100 , 150)

, 6

가

ANOVA test

Load Cell 600g Screw 가

(6).

(50 , 100 , 150) 4

Plastic bar
 Sand Paper (7), Holder
 System

3

2)

30

Kruskal - Wallis test

50 , 100 , 150

(3)

8).

Microsoft Exel 97

Table 1. Result of Kruskal - Wallis test by Experimental 1

	A	B	C	Prob > F
50 (n=4)	0.0775 ± 0.005	0.0625 ± 0.005	0.0575 ± 0.005	0.0008**
100 (n=4)	0.1950 ± 0.006	0.1525 ± 0.013	0.1550 ± 0.010	0.0003**
150 (n=4)	0.2725 ± 0.013	0.2125 ± 0.013	0.2225 ± 0.005	0.0001** Krus

kal - Wallis test ** p<0.01

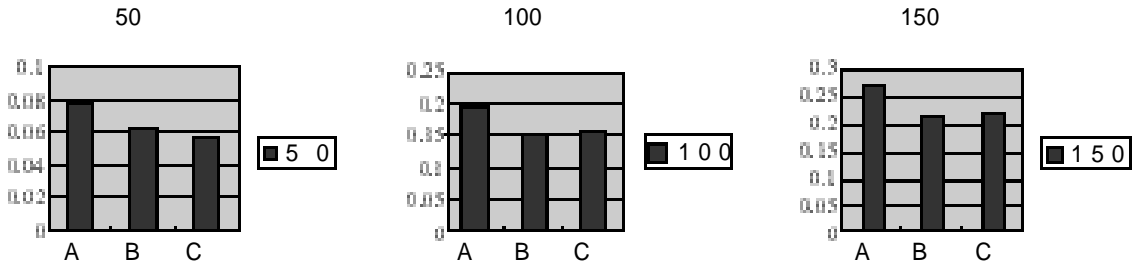


Figure 9. Result of kruskal - Wallis test by Experimental 1

Table 2. Result of Mann - Whitney - U test by Experimental 1

	<50 stroke>	<100 stroke>	<150 stroke>																																																
	<table border="1"> <tr><td></td><td>A</td><td>B</td><td>C</td></tr> <tr><td>A</td><td></td><td></td><td></td></tr> <tr><td>B</td><td>*</td><td></td><td></td></tr> <tr><td>C</td><td>*</td><td></td><td></td></tr> </table>		A	B	C	A				B	*			C	*			<table border="1"> <tr><td></td><td>A</td><td>B</td><td>C</td></tr> <tr><td>A</td><td></td><td></td><td></td></tr> <tr><td>B</td><td>*</td><td></td><td></td></tr> <tr><td>C</td><td>*</td><td></td><td></td></tr> </table>		A	B	C	A				B	*			C	*			<table border="1"> <tr><td></td><td>A</td><td>B</td><td>C</td></tr> <tr><td>A</td><td></td><td></td><td></td></tr> <tr><td>B</td><td>*</td><td></td><td></td></tr> <tr><td>C</td><td>*</td><td></td><td></td></tr> </table>		A	B	C	A				B	*			C	*		
	A	B	C																																																
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B	*																																																		
C	*																																																		
	A	B	C																																																
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C	*																																																		
	A	B	C																																																
A																																																			
B	*																																																		
C	*																																																		

*

가

4) Mann - Whitney - U test

5) 가 가

가

Table 3. Result of Correlation Analysis by Experimental 1

Pearson Correlation Coefficients	
A	0.98890***
B	0.98242***
C	0.99050***

*** p < 0.001

III.

(p<0.01)

. 150

1. 1

B C
A

Table 1

Table 1

(9)

50 ,
(p<0.01)

Table 2
Mann -
Whitney - U test

Mann -

, A 가가

Kruskal - Wallis test

B C

가

. 100

ANOVA

Mann -

50

가

A 가가

Whitney - U test

B C

Table 3 3

A 가 B C

가

50 , 100 , 150

A,B,C

A 가 가

, B C

가

C
(0.99050)

100 150

50

가

A

가

Table 4. Result of Kruskal - Wallis test by Experimental 2

	A (n=2)	B (n=2)	C (n=2)	P - Value
50	0.085 ± 0.007	0.060 ± 0.000	0.055 ± 0.007	0.0262*
100	0.185 ± 0.007	0.155 ± 0.007	0.155 ± 0.014	0.0370*
150	0.270 ± 0.014	0.205 ± 0.007	0.220 ± 0.000	0.0116*

Kruskal - Wallis test * p < 0.05

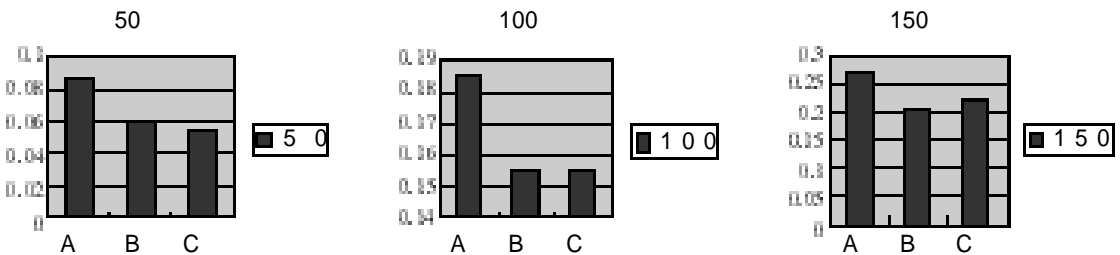


Figure 10. Result of Kruskal - Wallis test by Experimental 2

Table 2. Result of Mann - Whitney - U test by Experimental 2

	<50 stroke>			<100 stroke>			<150 stroke>		
	A	B	C	A	B	C	A	B	C
A									
B	*			*			*		
C	*			*			*		

*

가

Table 6. Result of Correlation Analysis by Experimental 2

Pearson Correlation Coefficients	
A group	0.99457***
B group	0.98206***
C group	0.99079***

*** p < 0.001

가 가 ,C
가 가
가 50
가 150
2. 2

Table 4 Kruskal - Wallis test

50 ,
(p<0.05)
, A 가 가
B C 가 . 100
50 가 A 가 가
(p<0.05)
. 150
B C
A

Kruskal - Wallis test
(10)

Table 5 Mann -
Whitney - U test Table 8). 가
Kruskal - Wallis test
ANOVA Mann - 가
Whitney - U test A 가 B, C
가
B C

3
(Correlation Analysis)

.
가 가 curette
가
가 A
(0.99457)
가
가
가 50 , 100 , 150
A,B,C A 가 가
, B C
1
가 가
curette

3 가
A ,
, 50 가 100
150 A 가
IV.

11 , 25 2) 50 가 150

가 가 가

20). Tal 가

가 stroke 15 , 45 가 19).

V.

가
Ni - Cr
가

1. 1

1) 50 ,
($p < 0.01$)
A 가가

(wear tester)

2) 100 50 가
A 가
($p < 0.01$)

4 1

A B , C
B

3) 150 B C
A

C

2

2. 2

3

1

1) 50 ,
($p < 0.05$)
A 가
B C 가

가

9. Carranza FA, ed. *Clinical Periodontology*, 8th ed. Philadelphia : WB Saunders ; 1996
10. Cercek, J.F., Kiger, R.D., Garrett, S., and Egelberg. J. : Relative effects of plaque control and instrumentation of the clinical parameters of hyman periodontal disease. *J Clin Periodontol* 10:46, 1983
11. Darby M, Bushee E. *Mosby 's Comprehensive Review of Dental Hygiene*, 2nd ed. St Louis : Mosby ; 1991
12. Hughes, T.P., Caffesse, R.G. : Gingival changes following scaling, root planing, and oral hygiene. A biometric evaluation. *J Periodontol* 49 : 245, 1978.
13. Morrison, E.C., Ramfjord. S.P., Hill. R.W. : Short term effects of initial, nonsurgical periodontal treatment (hygienic phase). *J clin Periodontol* 7 : 199, 1980
14. Nancy B. Coldiron, Raymond A. Yukna, Jin Weir, and Richard F. : A Quantitative Study of Cementum Removal With Hand Curettes. *J of Periodontology* 61:293 - 299 ; 1990
15. Paquette OE, Levin MP. The sharpening of scaling instruments : I. An examination of principles. *J Periodontol* 48 :163 - 172, 1977
16. Paquette OE, Levin MP. The sharpening of scaling instruments : II. A preferred technique. *J Periodontol* 48 : 169 - 172, 1977
17. Stahl, S. : Repair potential of the soft tissue root interface. *J Periodontol* 48:545, 1977
18. Tagge, D.L., O 'Leary, T.J., El - Kafrawy. A.H. : The clinical and histological response of periodontal pockets to root planning and oral hygiene. *J Periodontol* 46 : 527 - 533, 1975
19. Tal H, Joan M.Panno, and T. K. Vaidyanathan. Scanning Electron Microscope evaluation of wear of dental curettes during standardized root planing. *J Periodontol* 56 : 532 - 536, 1985
20. Tal H, Joan. Pannot, and T.K. Vaidyanthan. Scanning electron microscope evaluation of wear of stainless steel and high carbon steel curette. *J Periodontol* 60: 320 - 324, 1989

(1)

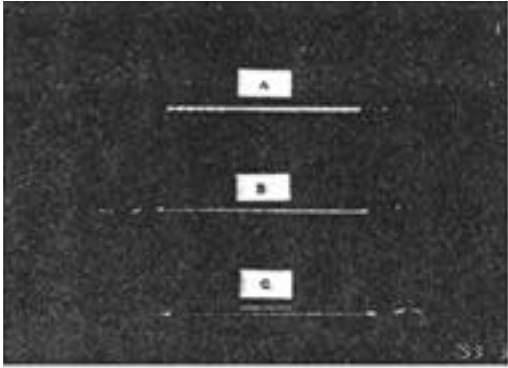


Figure 1

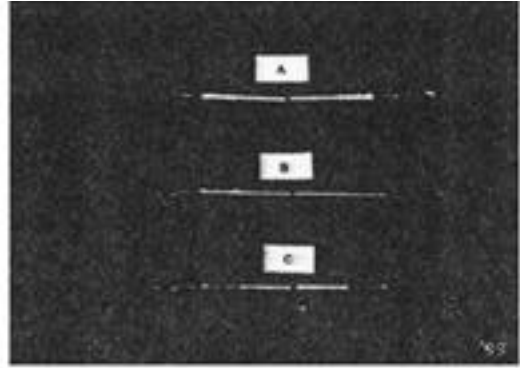


Figure 2

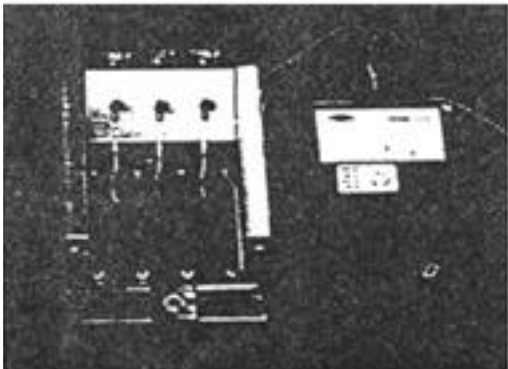


Figure 3



Figure 4

(II)



Figure 5

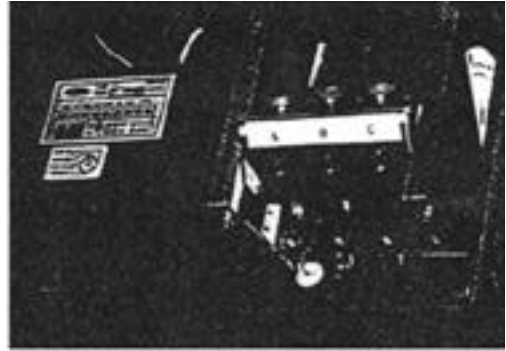


Figure 6

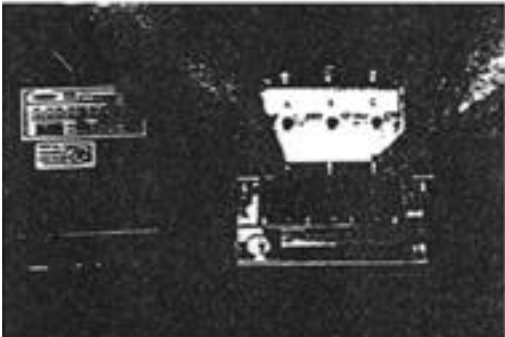


Figure 7

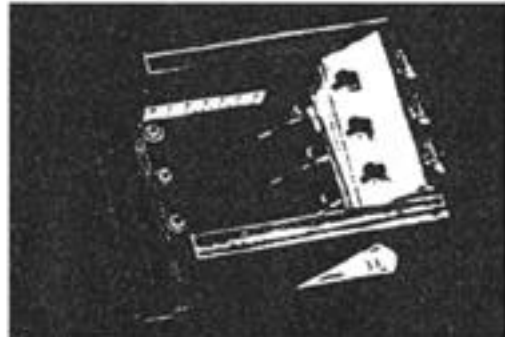


Figure 8

Figure 1. The Picture of Double - ended No. 11/12 Gracy curettes from three different manufacturers

Figure 2. The Picture of Cutted Double - ended No. 11/12 Gracy Curettes From Three Different Manufacturers

Figure 3. The Manufactured Picture of Wear Tester

Figure 4. The Picture of 320CW Silicon Carbide Abrasive Paper

Figure 5. The Picture taken the width between the cutting edges

Figure 6. The Picture of Wear Tester with the Curettes applied by the Fixed Pressure

Figure 7. The Picture of Three Curettes on a Sand Paper

Figure 8. The Picture of Worn Curettes

- Abstract -

Evaluation of Wear of Periodontal Curets' Lateral Surface in Working - end

Dong - Whan Shin, Sung - Bin Lim, Chin -
Hyung Chung
Department of Periodontology College of
Dentistry Dan - Kook University

The purpose of this study was to evaluate the degree of wear of periodontal curet 's cutting edges made by three different manufacturers.

In the first case of the experiment, this study was done with each new curett in the following three experiment. Twelve new double - ended No. 11/12 Gracy curettes from three different manufacturers (A, B and C) was randomly selected from our stock at first test. They were weared by wear tester with fixed pressure and limited distance. This study measured the width of worn curettes 'cutting edge. The

results were as follows ;

- 1) In 50 times experiment, this study discoverd that each manufacturer 's curette was appeared with different degree of wear ($p < 0.01$)
- 2) In 100 times experiment, this study result similarly to the 50 times exper - iment($p < 0.01$).
- 3) In 150 times experiment, the result of

this study were alike as the X50 experiment and X100 experiment.

In the second case of the experiment, the study was done with a curett of a manufac - turer in the following three experiment. Two double - ended No. 11/12 Gracy curette from three different manufactures (A, B and C) was randomly selected from our stock at second test.

- 1) In 50 times experiment, this study discovered that each manufacturer 's curette was appeared with different degree of wear ($p < 0.05$).
- 2) In 100 times experiment, the result was same, compared with the 50 times experiment.
- 3) In 150 times experiment, this study also discovered that the result was same with the result of the upper two cases.

In conclusion, this study discovered that the two cases of experimental were shown with a same result.